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INTRODUCTION

Recently, epidemiological studies have demonstrated increased health symptomatology and lower functional status in troops returning from Gulf War (GW) in 1990-91 compared to other GW-era veterans (e.g., non-deployed personnel (Iowa Persian Gulf Study Group or Iowa et al., 1997; Haley et al., 1997; Fukuda et al., 1998; Unwin et al., 1999) or troops deployed to Germany during the same time period (Proctor et al., 1998; Proctor et al., in press)). However, lack of information about GW veterans' pre-deployment health status has made it difficult to fully evaluate the role that deployment experiences play in soldiers' health (PRD5, 1998, p. 34). The proposed cross-sectional study will address three research objectives and lay the ground work to establish a cohort of current Massachusetts Army National Guard (ARNG) members whose health status can be followed longitudinally as they remain State-side; are deployed for combat, peacekeeping, or civilian emergency duties; and after they leave the military. The primary objective is to describe the current health status of this National Guard cohort using methods that will permit comparison to other population norms (e.g., Medical Outcomes Study Short Form Health Survey, SF36 (Ware 1994); SF36V (Kazis et al., 1999)) and current surveillance system parameters (e.g., US Army Health Risk Appraisal). The second objective is to examine to what extent the job strain (Karasek 1979; Karasek and Theorell, 1990) of National Guard service as a 'second job' affects the relationship between the job strain of the service members' civilian jobs and health and job performance outcomes (functional health status, fatigue symptomatology, job performance). The third objective is to examine whether attrition from the National Guard is related to current health status by additionally surveying a cohort of persons who have left National Guard service within the past three years. The study cohort will include all current Massachusetts ARNG members and those former members who have left ARNG service within the past three years. Each subject will be asked to complete a mail survey about his/her current health and deployment and occupational characteristics (both civilian and military). Identification of specific occupational factors that relate either negatively or positively to health status is an important step towards designing and implementing effective strategies that will protect and improve the health of National Guard members in the current military environment (cf. PDR5, 1998; CDC Conference- Prevention Working Group Recommendations, 1999).

BODY

A description of the research accomplishments associated with each task outlined below in the approved Statement of Work (SOW) will be described.

Approved SOW tasks for this funding period (Jan. 24, 2000- Jan. 23, 2001)

Year 1		
Task 1	Months 1-3	Hiring of project staff; Organize Advisory Group
Task 2	Months 4-10	Finalize the survey instrument, via:
Task 2a		Telephone and in-person interviews with current ARNG members
Task 2b		* Conducting structured telephone interviews with ARNG members
Task 2c		Pilot the survey instrument on group of 20 volunteers.
Task 2d		Convene a meeting of the Advisory Group to finalize survey instrument
Task 3	Months 11& 12	Request updated list of current ARNG members from DMDC
Task 4	Months 11& 12	Determine number of persons who have left ARNG in past 3 years
Task 5	Months 11& 12	Pre-notification of study, at the unit level throughout MA
Task 6	Months 11& 12	Printing of final survey instrument and mailing materials

* In our original proposal, we planned to conduct focus groups with ARNG members. However, due to difficulties in scheduling these focus groups, we decided to conduct individual interviews over the telephone with ARNG members. (See further description below.) The Principal Investigator (PI) initiated

approval for this change in the SOW in July 2000. It was finally approved in late October 2000 by both the BU IRB and US Army's Human Subjects Research Review Board (HSRRB) and notification of this approved change was received by the PI from her Contracting Officer on November 14, 2000.

Task 1- Hiring of project staff; Organize Advisory Group. The initiation of hiring of project staff and organization of the Advisory group occurred between February and April 2000. Additionally, the PI initiated contact with the new Adjutant General (AG) of the Massachusetts (MA) ARNG in April 2000 through introduction by Dr. Abraham Zimelman, State Surgeon of the MA ARNG and also an Advisory Group member on this project.. Brig. Gen. Keefe was named AG in early 2000. He expressed keen interest in the project and asked to review a copy of the grant application and to have the JAG review the project. The PI met with the AG in early June 2000 to answer any questions he might have and he gave his support for the project. Both he and the State Surgeon and their staffs have been very helpful to the PI and the Study team in answering questions and in providing assistance in any way they can.

Also, as part of the initial 3-month start-up period, the PI made contact with the various collaborators to tell them the project was funded and inform them of the timeframe of the project. For example, the PI had a conference call with Mike Dove at Defense Manpower Data Center (DMDC) in April 2000 to let him know what specific information we would be requesting and when (see further description in Tasks 3&4 below). Also, the PI had a conference call with LTC Mark Rubertone from the US Army Center for Health Promotion and Preventive Medicine (CHPPM) in June 2000 to go over the process by which Health Risk Appraisal (HRA) data would be requested by the PI for subjects completing the mail survey who had provided their individual consent to access their HRA data.

During the several conversations with LTC Rubertone and additional conversations with staff at the MA ARNG and the National Guard Bureau, it is evident that the National Guard does not systematically enter HRA data into any centralized, national database. In a check made by LTC Rubertone, there were some entries of HRA data for some MA ARNG unit members in the database maintained by CHPPM, but this database most assuredly does not include all ARNG members that have completed a HRA survey. For example, when we gave LTC Rubertone a list of three different MA ARNG units (i.e., by unit identification code), he was able to tell us that there were only about 20 HRAs that had been filled out while the person was assigned to any of these units over the course of the 10-20 years of the database. At this point, both LTC Rubertone and I surmise that the ARNG members who have HRA data in this CHPPM database may be those who at one point were on Active duty or activated for deployment while assigned to these units, but this will require further examination. During the upcoming year of this project, after the survey has been completed by current and former ARNG members, the PI plans to further explore the nature of existing medical/health databases for ARNG service members, as having a systematic national database of ARNG members and their health information will help immeasurably in being able to address deployment health-related concerns in this era of Force Health Protection. In the meantime, the PI has had conversations with persons at the National Guard Bureau (NGB) who confirmed that HRA data are not requested from the states to go into a national database.¹ It appears to be up to the states as to whether and how they address the surveillance of medical or health data that is routinely collected. Fortunately for this project and the health of MA ARNG members, the Massachusetts ARNG does take an active stance in the area of medical surveillance and health promotion programs. At the MA ARNG, they do enter the HRA data (along with blood pressure, cholesterol, and fasting blood sugar levels) that is collected from service members who are > 38 years of age and for others for whom they feel it is clinically indicated. Based on HRA data and other

¹ The PI spoke with the Office of the Chief Surgeon at the National Guard Bureau in July 2000 and was told that although the National Guard Bureau does collect some general medical and physical health data from the states, they do not collect HRA data. Also, it appears that the National Guard Bureau does not keep a 'surveillance' record of the soldiers' health over time, rather the system writes over the soldiers' current record with new information when the new information is input. The PI was told that work is underway at the NGB to consolidate and revise these national database systems.

medical information, they will recommend stress testing and follow-up counseling to those service members' with whom they feel it is appropriate. The MA ARNG ask all service members to complete the HRA, but they do not routinely record it into a database or keep the survey for those persons less than 38 years of age. Thus, the PI has requested that the MA ARNG enter the HRA surveys into a database for all service members who have completed a HRA survey when they have their regular physical examination between July 1, 2000 and July 30, 2001. Due to privacy concerns, the MA ARNG would not allow members of this research team to do HRA data entry work. Therefore, the PI has agreed to provide some financial support to the MA ARNG (to their non-profit association fund) for this data entry work. (The PI contacted Juanita Bourne about this work and it was OK'd in October 2000; it does not change the original SOW.)

Task 2- Finalize the survey instrument. The majority of the time and work in this Year 1 has been carrying out several different steps to 'finalize the survey instrument'. Our plan was to attend several ARNG drill weekends to talk with different individuals about their civilian and ARNG jobs and their current health. As part of these individual interviews, individuals would be asked if they would agree to be contacted in the future for potential participation in scheduled focus groups during the summer and to pilot the survey questionnaire in late summer and fall. If individuals agreed, then we would ask them for their mailing address and phone number in order to contact them. If they said no, we told them about the mail survey planned for early 2001, but we did not ask them for any contact information. The purpose for interviewing persons and conducting the focus groups was to help us in finalizing the survey instrument... "to assist us in tailoring the survey instrument to real life unit- and ARNG-level concerns" and to make sure we were not missing any important aspects about ARNG and civilian jobs and health that are not captured by the questions in the scales outlined in the research proposal (identified on pages 19-20 in the original application).

Task 2a- Telephone and in-person interviews with current ARNG members. Over three weekends last spring (April/May 2000), the Research Study staff interviewed 60 ARNG members during their weekend drills. Characteristics of these 60 persons are provided in **Table 1** below. Forty-five percent of those interviewed reported some problems or concerns on their jobs that they felt affected their health or job performance. Those persons that did report concerns for the most part reported concerns about their civilian jobs, not their ARNG jobs.

Thirty of the 60 persons we spoke to gave their verbal consent for us to follow-up with them to see if they would want to participate in a focus group and/or pilot the test questionnaire at a later point in time. (Participation in the focus group and completing the test questionnaire had separate, formal informed consent procedures.)

*Task 2b- *Conducting structured telephone interviews with ARNG members.* In following up with the 30 individuals that we spoke with at drill weekends, 4 out of the 29 persons we were able to recontact in May/June 2000 indicated that they would participate in a focus group. We scheduled a focus group for June 26, 2000 with 3 of these 4 individuals and 1 person showed up. (A copy of the focus group guide is included in the *Appendix*.) We did conduct that 'focus group', although it turned into a structured in-person interview with the 1 person who showed up. In attempting to recontact the remaining 28 persons who initially indicated that they might be interested in the focus groups and testing the questionnaire, we recognized that we would have difficulty in carrying out the focus groups as originally proposed. Anecdotally, we were told by several of these individuals that they would not have the time to attend a focus group regardless of when we scheduled it (i.e., evenings, Saturdays). Several of them volunteered that they would answer questions over the phone. Thus, in order to try and obtain individual opinions about individuals' experiences with their ARNG and civilian jobs, in July 2000 we submitted a request to change the SOW from focus groups to structured telephone interviews to both the BU IRB and the US Army's HSRRB. Our plan was now to conduct individual structured telephone interviews with individuals from the original pool of 29 individuals who agreed to let us recontact them. Final approval for this change in the SOW was made in late October 2000 and notification of this

approved change was sent to the PI early November 2000. At that point we attempted to reach members of the 28-member subject pool and were able to schedule and conduct telephone interviews with 2 of these persons.

Task 2c- Pilot the survey instrument on group of 20 volunteers. In late November 2000, we sent a test copy of the questionnaire to the 29 persons who agreed to let us contact them and asked them if they would complete the survey and send it back to us. Ten individuals signed the consent form, completed the test questionnaire, and sent them both back to us. A summary of the responses for selected questions in the test questionnaire is provided in **Table 2** below.

Task 2d- Convene a meeting of the Advisory Group to finalize survey instrument. An Advisory Committee meeting was held on January 9, 2001 and all the Advisory Group members attended. The input given by the Advisors provided very valuable information to the PI in planning and formatting the content of the final survey instrument. (A list of the content areas covered in the survey instrument is provided in the *Appendix*.)

In summary, the information garnered from both the interviews conducted at ARNG drill weekends and via the telephone and the feedback from the responders to the test questionnaire was very helpful in working to finalize the survey instrument content. A number of persons mentioned the role of family and/or spousal support in their being able to continue with ARNG service and thus, we have added an additional scale to assess family support roles that was designed specifically for use in working populations (i.e., King et al., 2000). Also, a number of persons report that their roles and responsibilities are very different between their civilian and ANRG jobs so we have made an effort in the final survey instrument to try and be as comprehensive as possible in assessing the various differences in job characteristics and roles between one's ARNG and civilian job.

In early January, the final survey content (along with the cover letter, and previously approved informed consent form (ICF) for the mail survey) was submitted to the BU IRB and the US Army's HSRRB for their approval. BU provided their approval of these items on January 17, 2001, with no revisions requested. On February 6, the Army came back with requested changes to the approved consent form and some slight changes to the survey content (Memorandum For Record dated 6 Feb 2001). We made those requested changes (and submitted the documents to both BU and the Army on February 7, 2001). The BU IRB has since approved the latest changes (approved February 13, 2001), but as of February 20, 2001 we have not heard back from US Army HSRRB. We are awaiting word from the US Army HSRRB before proceeding to send these materials to the printer.

Tasks 3&4- Request updated list of current ARNG members from DMDC & Determine number of persons who have left ARNG in past 3 years. The PI initiated a request to Mike Dove at DMDC on November 1, 2000 for the current roster lists of persons in the Massachusetts ARNG and those former members who had left the ARNG within the past 3 years. The PI received the requested data on January 10, 2001. (A database was sent to the PI in December 2000, but it was not complete.) After examining the database sent, there were a total of 7,928 persons who were currently ARNG members as of October 2000 (most current date of DMDC database search) and 3,964 persons who had left ARNG since October 1997. The number of persons who have left the ARNG service in the past 3 years is where the increase occurs (from an estimated 2,000 to 3,964), not in the estimated number of current ARNG members. The reason for this increase in the number of members leaving the ARNG is not known, but through the course of the proposed study we may be able to identify some potential reasons. In the original grant proposal it was calculated that the proposed sample size of 10,000 would provide adequate power to examine the associations between independent measures and outcomes of interest described in the proposed hypotheses. With an increased sample pool, from an estimated 2,000 to 3,924 persons who have left the National Guard in the past three years, the study will have additional power to examine specific retention/attrition-related factors and their impact on former ARNG members' health status. The PI has notified both the BU IRB and the US Army's HSRRB of this increase in sample size/study cohort and requested approval.

Task 5- Pre-notification of study, at the unit level throughout MA. Pre-notification of this study and specifically, that a survey will be mailed out in early March 2001 has been made at unit level. In early February 2001, we sent a flyer out to all the 104 unit commanders of ARNG units in Massachusetts. (The flyer contained text that has been previously been approved by the BU IRB and the US Army HSRRB for use on websites and/or newsletters or flyers as a type of public relations release about the study.)

Task 6- Printing of final survey instrument and mailing materials. The printing of some materials (i.e., out-going and business reply return envelopes) was initiated in late January 2001. As noted above, we are still awaiting final approval by the US Army's HSRRB of the survey, cover letter, and ICF before going to the printer. We anticipate that the initial mailing of the survey will begin in early to mid-March 2001.

Summary of Year 1 Work Tasks

At the end of this first year of funding, we are generally on-schedule, and there have been no major problems in carrying out this project to date. We are awaiting final approval from the US Army's HSRRB for the mail survey contents and mailing materials before proceeding to initiate the mail survey. For those issues that we have identified along the way as needing specific attention, we have taken some specific actions.

- ◆ **HRA data:** We have identified some problems in relying exclusively on the CHPPM database containing HRA data as it has come to our attention (through correspondence with LTC Rubertone and others) that this database may not contain HRA collected from ARNG members. We have made an arrangement with the Massachusetts ARNG whereby they will enter the recent HRA data collected over the period from July 1, 2000 to July 31, 2001 for all MA ARNG members who fill out the HRA during that time period.

- ◆ **Focus groups:** Due to problems in scheduling a convenient time for current or former ARNG members to participate in focus groups, we requested approval to change the SOW to conduct individual structured telephone interviews with subjects instead of focus groups in order to obtain first-hand information and opinions from ARNG members about the nature of their civilian and military jobs and their thoughts about their health. This change to the original SOW was approved.

- ◆ **Increase in study cohort size:** Based on information obtained from DMDC, the size of the study cohort has increased by approximately 2,000 persons from what was estimated at the time of the grant application. What is most striking is that this increase comes almost exclusively from the number of persons leaving the ARNG in the past 3 years (going from an estimated 2,000 to 3,964 persons). This increase in study cohort size has resulted in some increases in the costs of the mail survey that were not foreseen when we wrote or were awarded the grant. We have requested some supplemental funds to cover this increase in costs.

- ◆ **Bosnia-deployed:** It has come to our attention that a group of MA ARNG members are due to be deployed to Bosnia in August 2001. We are requesting the opportunity to collect more extensive pre-deployment data regarding their health and cognitive functioning skills along with members of a comparison group that is not being deployed. (See further description below.) We have submitted a request for supplemental funds to conduct in-person pre-deployment interviews and testing sessions with these ARNG members (request submitted 2/13/01).

KEY RESEARCH ACCOMPLISHMENTS

During this funding period (Jan. 24, 2000- Jan. 23, 2001), we have completed the tasks set out in the Approved Statement of Work for this project and specifically, the following research accomplishments have resulted:

- Focus group/telephone interview guide has been developed to systematically query current and former ARNG members about their jobs and aspects of their jobs that might impact their health.
- Comprehensive survey instrument has been developed to query current and former ARNG members about their jobs and aspects of their jobs that might impact their health.

REPORTABLE OUTCOMES

1. Abstract presented at the Conference on Illnesses among Gulf War Veterans, Alexandria, VA; January 2001.

The PI is also longitudinally following a group of Gulf War veterans (Devens cohort) and has recently performed a descriptive study on the factors related to retention in the ARNG following GW service within the Devens cohort (Proctor et al., 2001). (A copy of the Abstract is included in the *Appendix*.) Those who were officers during the GW and those who reported a higher level of unit cohesion and leader support (as measured by WRAIR unit cohesions scales; Marlowe, 1987) during their GW service were more likely to have remained in the ARNG six years post deployment. Also, these factors are independently associated with higher levels of physical functioning six years after GW service. These results suggest that the support in the 'work' environment during deployment is an important factor in retention in the service, as well as functional health. In the current survey study, we will also examine the role of unit- and leader-level support (as well as family and civilian work support networks) in the relationship with health status and ARNG retention.

2. Request for supplemental funding.

It has come to our attention that a group of current Massachusetts ARNG members is scheduled to be deployed to Bosnia in August 2001. These ARNG members to-be-deployed are largely from infantry units; their deployment responsibilities will involve maintaining security and they are being deployed for a 9-month tour. We have made a request for supplemental funding as we would like to take the opportunity to collect more extensive individual pre- health information as well as initiate a prospective study to examine post-deployment health in the Bosnia-deployed group and a comparison group.

Additionally, in the request for supplemental funding to study the Bosnia-deployed and comparison groups, we have requested some supplemental funds to carry out the mail survey part of the currently funded project. Since we wrote and were awarded the grant, the cost of postage has increased and there has been a general increase in the vendor charges related to the survey printing and mailing services costs. Also, due to the increase in the number of subjects to be sent the survey and thus our estimated number of respondent surveys to be returned, the costs for printing, mailing, and data entry have increased.

The PI directed this request for supplemental funding to Juanita Bourne at USAMRAA on 2/13/01.

CONCLUSIONS

The work on this funded project is on going. When completed, it will provide important information about the health and well-being of ARNG forces in the current Army climate and will hopefully identify some occupational factors that relate either negatively or positively to health status and/or job performance and that can lead to implementation of effective intervention strategies that will protect and improve the health of National Guard members in the current military environment.

Recent efforts in the area of deployment health and Force Health Protection appear largely focused in the Active duty arena. There is also a need to provide some focused effort on National Guard and Reserve forces and this research need has been identified by the Institute of Medicine (1999, 2000) and mentioned at the recent session concerning Force Health Protection at the Conference on Illnesses

among Gulf War Veterans (January 2001). The Army National Guard operates under a somewhat different structure than the Active Duty Army: politically, bureaucratically, and socially. Thus, to be most beneficial in designing effective strategies in deployment health protection one needs to understand the nature of who and what make up the ARNG forces in this current climate, as well as the State and National frameworks in which they operate. This survey study appears to be one of the first to focus on the specific issues surrounding ARNG service and deployment health.

TABLE 1. Characteristics of the ARNG Members (n=60) Interviewed During Weekend Drills- April/May 2000.

Age	< 30 years	48%
	30+ years	52%
Gender	Male	85%
	Female	15%
Rank	Enlisted	52%
	NCO	35%
	Officer	13%
Current Health Rating	Excellent	22%
	Very good	45%
	Good	23%
	Fair	3%
	Poor	2%
Total Time in ARNG	0-5 years	43%
	6-10 years	22%
	11+ years	35%
Expressed Concerns About Civilian and/or ARNG Job That Affect Health or Ability to do Job		
	Yes	45%*
	No	55%

(*Concerns mentioned: 7%-overwhelming workload; 7%-heavy lifting/physical demands; 5%-exposure to chemicals; 5%-long work hours; 3%-exposure to illness; 3%-physical stress or discomfort; other concerns mentioned by 2%-stress from job demands; hearing loss, interpersonal problems, insufficient training to do job.)

TABLE 2. Summary of Test Questionnaire Responder (n=10) Characteristics and Responses.

Age (Mean=43 years; standard deviation=14)

< 30 years	20%
30+ years	80%

Gender

Male	90%
Female	10%

Education

High School	70%
Any college	30%

Currently in ARNG

Yes	70%
No	30%

Time in ARNG

2-4 years	10%
4-6 years	20%
> 6 years	70%

Activities Limited Due to Health

Yes	20%
No	80%

Overall ARNG Job Satisfaction

A little	20%
Somewhat	30%
Very	50%

Primary Reason Joined the ARNG: education benefits, military values and lifestyle, military training opportunities, opportunities for deployment missions, service to country (10-20% of group endorsed these reasons)

Primary Reason Left or Would Leave ARNG: forced retirement, amount of personal or family time, limited advancement opportunities, not promoted, work not challenging, civilian job concerns, medical or physical problems (10-20% of group endorsed these reasons)

<u>Current Health Rating-</u>	<u>in ARNG (n=7)</u>	<u>not in ARNG (n=3)</u>
Excellent	29%	67%
Very good	43%	0%
Good	28%	33%
Fair or Poor	0%	0%

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APPENDIX

FOCUS GROUP GUIDE

OPENING

- ❖ To begin, I would like each of you to introduce yourself and give us a brief description of both your Army National Guard (ARNG) and civilian job. Please be sure to include rank and job titles where appropriate.

JOB CHARACTERISTICS

- ❖ We are interested in finding out more about the nature of the environments in which you work and also some specific characteristics of your various jobs. We encourage you to talk about both jobs but please clarify when you are referring to your military or civilian job.
 - First, what are the most rewarding or satisfying aspects of your ARNG and civilian jobs?
 - What are the most disappointing or frustrating aspects of your ARNG and civilian jobs?

Probes (if needed):

What do you like about your civilian job? Your ARNG job?

What are the most demanding aspects of your jobs?

Do you feel you have enough time to carry out your job tasks?

- ❖ Because service in the National Guard is a “second” job for many members, we are interested if there are possible effects that one job has on the other.
 - **Work done in the ARNG service could potentially augment or interfere with your civilian work and vice versa. Tell us about your experiences.**

Probes (if needed):

Are there any aspects of your two job roles that you feel conflict with each other?

Do you feel that your ARNG job interferes with your family or recreational time?

- ❖ Often, in one’s job, it is your relationships with other people that you work with or for that can positively or negatively affect your ability to perform your job.
 - **What is the relationship, either positive or negative, among coworkers? (your unit?)**
 - **Do you feel like your suggestions or ideas are heard or considered by management or supervisors?**

Probes (if needed):

Do you feel alone in getting your work done or do you feel part of a team?

How well do you think your supervisor understands the problems or concerns that you face?

SKIP THIS QUESTION IF PRESSED FOR TIME DURING FOCUS GROUP SESSION.

- ❖ Please think about your current civilian job and ARNG environments.
 - **Do you think you are exposed to hazardous exposures or conditions?**

Probes (if needed):

Are you required to complete any safety or training programs related to any hazardous work conditions in your jobs?

HEALTH

- ❖ As I described in the Introduction, in this study we are interested in your current health and quality of your life. Please think about how you have felt over the past several months.
 - **Are there aspects of your ARNG or civilian job that you feel affect you general health?**
 - **Do you have health concerns that cause you difficulties performing your daily activities at either your ARNG or civilian job?**

Probes (if needed):

Does the number of hours worked at your jobs cause you to feel excessively tired?

Does your health limit you on your job?

Have you accomplished less than you would like as a result of your health?

ARNG RETENTION ISSUES

- ❖ In this section we are going to talk specifically about your ARNG job. Think back over the past months or years about other factors of military service that have had an impact on your job satisfaction.
 - **First, what aspects of your ARNG job make you want to remain in the service?**
 - **What aspects would make you want to leave?**

CLOSING

- ❖ **Is there anything else you would like us to know?**

Thank you very much for your time and input. Please feel free to contact us if you have any further questions or concerns.

OCCUPATIONAL HEALTH STUDY OF ARMY NATIONAL GUARD MEMBERS SURVEY CONTENTS

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INSTRUCTIONS (1 Page)

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Section K. Characteristics of your Civilian Job

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Section O. Support

Section P. Current Mood

Section Q. Personal Characteristics

Section R. ARNG Service- Checklist

TEAR OFF PAGE- Contact Information (1 page; this page will be separated from the survey when it is mailed back to us so that identifier information is not kept with the survey information.)

SOURCE OF QUESTIONS/SCALES

Section A. General Information

[NOTES: questions include- today's date; dob; sex; race; highest grade(open); highest grade(category); repeat grade; marital status; spouse work outside home?; spouse hrs. of work; spouse ARNG member?; have children?; # children at home; income; health insurance?; family history ques.]

Section B. ARNG Job Information

[NOTES: questions include- currently in ARNG?; date left if not; /duration in ARNG, active duty service?, time in present unit?, military pay grade, & NG category, NCO? Are questions from Galioto, 1988; p. 98-99; current MOS; current ARNG unit (write out)]

Section C. Civilian Job Information

[NOTES: questions include- current job title; category?; currently employed outside ARNG; in civilian job?; duration with current employer?; duration on job?; job situation; shift?; duration of that shift?; # hrs/week worked; OT hrs; mandatory OT?; eligible for OT pay?]

Section D. Other activities

[NOTES: questions include- 4 questions from NIOSH Job Stress Questionnaire about childcare responsibilities, elderly care responsibilities, etc.]

Section E. Medical Health

[NOTES: questions include- 1 question from CDC's Behavioral Risk Factor Surveillance System Questionnaire found at <http://www.cdc.gov/nccdphp/brfss/about.htm> ; list of medical conditions to endorse (or not)]

Section F. Health Status

[NOTES: questions include- 36 questions from SF36V (Ware 1993, 1994; Kazis et al. 1999); 4 q. from MOS cognitive functioning scale]

Section G. Physical Symptoms

[NOTES: questions include- 20 questions concerning fatigue symptomatology from the Checklist of individual strength (CIS; Beurskens et al., 2000)]

Section H. Characteristics of your ARNG Job

[NOTES: questions include- 31 questions from the Job Content Questionnaire (JCQ; Karasek et al., 1985: 6 q. on skill discretion (jqc #1,2,3,5,7,9); 3 q. on decision authority (#4,6,8); 9 q. on workload (#12,13,15,16,19,20,21,22,25); 5 q. on work demands (#14,17,18,23,24); 2 q. on job security (#27,28); 1 q. on skill utilization (#31); others;
1 q. on # days out of work (Polk et al; 1984);
6 q. on coping with ARNG work (NIOSH Job Stress Questionnaire);
for work performance on ARNG- 6 q. from Mangione et al. (1999) & 4 q. from MacEwen & Barling (1994); 4 additional questions from Lew Pepper's DoE Downsizing study]

Section I. ARNG Workplace Exposures

[NOTES: questions include- 3 workplace exposure q. from JCQ; 5 q. from Proctor et al. occupational exposure studies]

Section J. Relationships with Family and Friends

[NOTES: questions include- 10 q. on Family Strains, McCubben et al., 1996; 10 q. from Family Support Inventory for Workers (FSI-W; King et al., 1995, 2000); 1 q. on deployment issues; 1 q. about recommending ARNG job service]

Section K. Civilian Job Characteristics

[NOTES: questions include- 32 Ques. from JCQ: 6 q. on skill discretion (jqc #1,2,3,5,7,9); 3 q. on decision authority (#4,6,8); 9 q. on workload (#12,13,15,16,19,20,21,22,25); 5 q. on demands (#14,17,18,23,24); 3 job security (26,27,28); 1 skill utilization #32; others
days out (Polk et al.; 1984);
6 q. coping with job (NIOSH survey);
for work performance on civilian job- 6 q. from Mangione et al. (1999) & 4 q. from MacEwen & Barling (1994);
10 q. from FSI-W (Kings et al., 1995, 2000)]

Section L. Civilian Job Workplace Exposures

[NOTES: questions include- 3 workplace exposure q. from JCQ; 5 q. from Proctor et al. occupational exposure studies]

Section M. Health Symptoms

[NOTES: questions include- 25 q. from Gulf War study, Proctor et al., 1998]

Section N. General Lifestyle Questions

[NOTES: questions include- 3 q. on EtOH use & CAGE (Ewing et al., 1984 + modified version in Fertig et al., 1993); 4 q. on smoking]

Section O. Support

[NOTES: questions include- 20 q. from NIOSH Job Stress Questionnaire (from Caplan 1975); adapted to include ARNG supervisor and unit members]

Section P. Current Mood

[NOTES: questions include- 19 q. from BSI (Derogatis, 1993); 17 q. from PTSD Checklist (PCL; Weathers et al., 1993)]

Section Q. Personal Characteristics

[NOTES: questions include- 27 q. from Eysenck 1968; Floderus 1974; 6 q. Life Events (adapted from Norris et al., 1990)]

Section R. ARNG Service-Checklist

Reasons for joining:

Education benefits
Job-skills training
Military training opportunities
Military values and lifestyle
Opportunity for deployment missions
Pay and benefits
Service to country
Type of assignments

Reasons for staying/remaining:

Basic pay
Belonging to a team
Camaraderie, sense of esprit de corps
Education benefits
Enlistment promises met
Job security
Job-skills training
Military training opportunities
Military values and lifestyle
Opportunity for deployment missions
Responsive leadership
Retirement pay
Service to country
Type of assignments

Reasons for leaving:

Amount of personal or family time
Availability of needed equipment, parts, and materials
Civilian job concerns
Deployment missions
Emotional problems
Family concerns
Forced retirement
Lack of recognition
Leadership quality
Level of manning in your unit
Limited advancement opportunities
Medical or physical problems
Military values and lifestyle
Not promoted
Not treated fairly
Pay problems
Personal workload
Physical training
Type of assignments
Work not challenging

**CHARACTERISTICS OF ARMY PERSONNEL
REMAINING IN THE NATIONAL GUARD SIX
YEARS AFTER GULF WAR DEPLOYMENT:
A DESCRIPTIVE ANALYSIS.**

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Introduction: Factors that affect attrition and retention are of great concern to the US military (GAO, 1997). Several studies have described that preparation for deployment and readiness for combat, as well as the conflicting demands of civilian job, family life, and training (Grissmer and Nataraj-Kirby, 1985; Griffith, 1995) are important issues affecting attrition in Reserve members.

Hypothesis: Through descriptive analyses of data collected prospectively from a group of GW veterans (Devens cohort), we explored the relationship between GW-deployment characteristics (e.g., officer status, unit cohesion, combat exposure) and retention in the Army National Guard (ARNG) approximately six years post-GW service. We hypothesized that the relationship between GW deployment factors and ARNG retention would be confounded or modified by physical functioning levels.

Procedures: The Devens cohort is a group of 2,949 US Army personnel deployed to the GW that returned from the GW through Ft. Devens, MA in 1991. The whole cohort has been surveyed at three time points (Spring 1991; 1993; 1997). For these descriptive analyses we focused on a subset of the cohort: those in the ARNG during the GW and who completed all three surveys (n=684). We compared two groups (those remaining in the ARNG v. those who were civilians six years after GW service) on a number of characteristics: demographics, GW characteristics, physical and emotional health, work characteristics, and family stress and strain indices. Logistic regression models were performed to examine the specific role of certain GW factors on ARNG retention 6 years after GW service and the additional impact that physical functioning (as measured by the SF36) might play in the former relationship.

Summary of Results: Of the 648 ARNG members, 120 (19%) had left the service by 1993 and 284 (44%) had left and were civilians six years later. Compared to the civilians, those individuals remaining in the ARNG six years after deployment were more likely to have had less education and have been older, married, and an officer at the time of their GW deployment. Also, they reported more leadership support within their GW unit compared to those who were civilians six years after the GW. Physical functioning levels six years post-GW service modified, but did not confound, the relationship between certain GW-deployment factors and ARNG retention.

Conclusions: The results suggest that certain GW deployment factors may play a role in ARNG retention and that these factors play a more important role in ARNG retention following the GW in those persons with higher levels of physical functioning.

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